



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,921	12/08/2005	Yang Ju	SHIG CFP03US013	9545

27667 7590 04/20/2007
HAYES, SOLOWAY P.C.
3450 E. SUNRISE DRIVE, SUITE 140
TUCSON, AZ 85718

EXAMINER

BENSON, WALTER

ART UNIT	PAPER NUMBER
----------	--------------

2858

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/559,921	Applicant(s) JU, YANG	
	Examiner Walter Benson	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed 3/26/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☒ Claim(s) 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/26/2007 has been entered.

2. Claims 1-5 are pending.

Claim Rejections - 35 USC § 103

1. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boda et al. (US Patent No. 5,406,214 and Boda hereinafter) in view of Moslehi (US Patent No. 5,049,816 and Moslehi hereinafter).

2. As to claim 5, Boda discloses a measuring instrument for noncontact measuring of conductivity of a silicon wafer using a microwave, the measuring instrument comprising:

an oscillator for oscillating of the microwave (col. 6, lines 10-14);

a circulator connected to the oscillator (col. 6, lines 14-17);

Art Unit: 2858

an antenna connected to the circulator [34, 38, Fig. 2], the antenna transmitting the microwave to the silicon wafer and receiving a reflected wave from a surface of the silicon wafer (col. 6, lines 35-39);

a detector connected to the circulator [34, 48, Fig. 2], the detector outputting a voltage [col. 6, lines 42-44] proportional to a square of magnitude of the reflected wave (col. 8, lines 1-4);

Boda did not expressly disclose:

a horn antenna

a computer for computing conductivity of the silicon wafer from the voltage as a function of an absolute value of reflectance

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Bode, as evidenced by Moslehi.

Moslehi discloses a sensor for on-line inspection of a semiconductor wafer having:

a horn antenna (Fig. 2; col. 6, lines 16-19).

a computer for computing conductivity of the silicon wafer from the voltage as a function of an absolute value of reflectance (col. 10, lines 45-49).

Given the teaching of Moslehi, a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Boda by employing the well known or conventional features of microwave sensing, such as disclosed by Moslehi, in order to efficiently measure wafer specimens in the Boda apparatus.

Allowable Subject Matter

3. Claims 1-4 are allowable over the prior art of record.

The prior art of record fails to teach in combination as claimed a measuring instrument for noncontact measurement of conductivity of a silicon wafer using a microwave. The measuring instrument comprising: an oscillator operating at a frequency not more than 100 GHz for oscillating the microwave. A circulator connected to the oscillator; a horn antenna connected to the circulator. The horn antenna transmitting the microwave to an upper surface of the silicon wafer and receiving a reflected wave from the upper surface of the silicon wafer. A detector connected to the circulator, the detector outputting a voltage proportional to a square of magnitude of the wave from the upper surface of the silicon wafer. A computer for computing conductivity of the silicon wafer from the voltage

Response to Arguments

4. Applicant's arguments with respect to claim 5 have been considered but are moot in view of the new ground(s) of rejection.

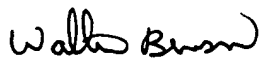
Art Unit: 2858

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Benson whose telephone number is (571) 272-2227. The examiner can normally be reached on Mon to Fri 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Walter Benson
Primary examiner

April 13, 2007